

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
16 October 2003 (16.10.2003)

PCT

(10) International Publication Number  
**WO 2003/085801 A3**

(51) International Patent Classification<sup>7</sup>: **H02K 3/00**, 17/12

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(21) International Application Number:  
PCT/US2003/010346

(22) International Filing Date: 3 April 2003 (03.04.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/370,484 3 April 2002 (03.04.2002) US

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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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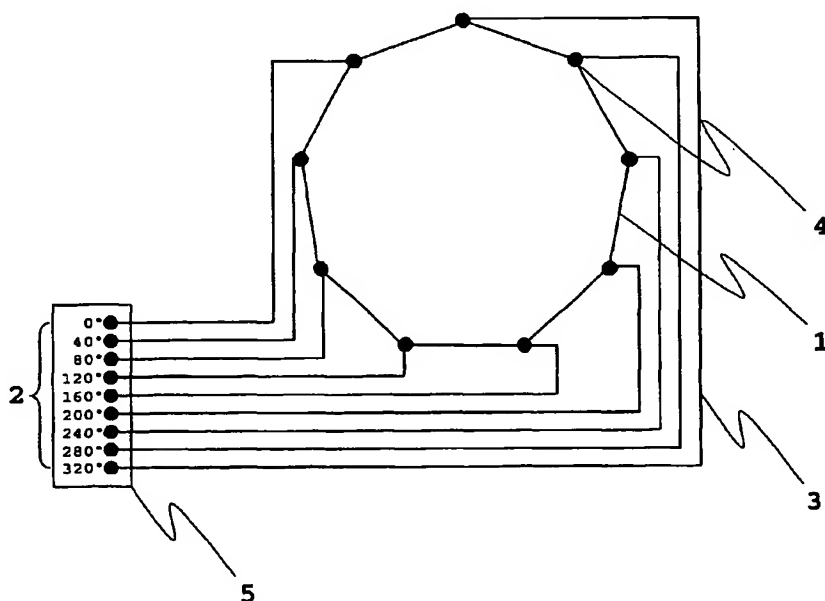
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Published:

— with international search report

[Continued on next page]

(54) Title: **HIGH PHASE ORDER ELCTRICAL ROTATING MACHINE WITH DISTRIBUTED WINDINGS**



(57) Abstract: A rotating induction machine, containing five or more different phases (1), having windings distributed according to a sinc function with a cutoff frequency allowing low-order spatial harmonics but preventing higher order spatial harmonics from flowing. In a preferred embodiment, the machine is connected to drive means (5) capable of injecting third harmonic into the machine. In a further preferred embodiment, the windings are connected to the drive means (5) with a mesh connection and the machine has five phases.

WO 2003/085801 A3



(88) Date of publication of the international search report:  
26 February 2004

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/10346

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :H02K 3/00, 17/12

US CL :310/166, 195, 198; 318/771

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 310/166, 195, 198; 318/771;

310/159, 179, 180, 184, 185; 318/727,767

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

APS, EPO, JPO, DERWENT, IBM TD

Search terms: motor, machine, sinc, function, distribution, windings or coils, sine, sinusoidal.

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3,995,203 A (TOROK) 30 November 1976, see abstract and Figs. 1, 2, 5,14, 18.	1-23
A	US 4,146,804 A (CARR, JR.) 27 March 1979, see abstract and Figs. 11, 12.	1-23
A	US 4,319,176 A (AKAMATSU) 09 March 1982, see abstract and Fig. 7.	1-23
A	US 4,321,518 A (AKAMATSU) 23 March 1982, see abstract and Figs. 4, 10, 12, 14, 27.	1-23
A	US 4,678,974 A (GUASTADINI) 07 July 1987, see Figs. 11-20.	1-23
A	US 5,757,182 A (KITAZAWA) 26 May 1998, see abstract and Figs. 2, 5, 6.	1-23

☒ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

24 JULY 2003

Date of mailing of the international search report

30 SEP 2003

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International application No.

PCT/US03/10346

## C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,821,656 A (COLBY et al) 13 October 1998, see abstract and Figs. 8, 9, 14, 15, 17.	1-23